SPARKING STUDENT CREATIVITY: EXAMINING THE RELATIONSHIP BETWEEN KNOWLEDGE SHARING, EMOTIONAL INTELLIGENCE, INTRINSIC MOTIVATION, SELF-EFFICACY, AND CREATIVITY

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Abstract
This paper examines personal factors that influence students’ creativity. We conducted a study using quantitative approaches involving 75 students from a Slovenian business school. The results show that knowledge sharing, emotional intelligence, self-efficacy, and intrinsic motivation are all positively related to creativity. We discuss the implications for theory, practice, and future research.

Keywords: knowledge sharing, emotional intelligence, intrinsic motivation, self-efficacy, creativity

1. INTRODUCTION

Creativity is vital in today’s workforce. Therefore, there is increased pressure on business students, who will be soon entering the workforce, to be more creative. What stimulates the creative behavior of today’s business students is thus a highly relevant question for both academics and practitioners. The majority of the existing creativity research has highlighted the importance of personal factors that are beneficial for fostering creativity.

The aim of this paper is thus to examine the influence of four personal factors on business students’ creativity. First, knowledge sharing, defined as a process occurring between at least two people who spread their newly acquired knowledge or information among each other, was found to be an important factor for enhancing individuals’ creativity. Second, research also suggests that emotional intelligence is positively related to creativity. Moreover, strong self-efficacy is a necessary condition for creative productivity and the discovery of new knowledge. Finally, in order to be creative, business students should also be intrinsically motivated.

The goals of this study were to a) explore how selected personal factors influence the creativity of business students and b) to test the proposed relationship in a student environment. Our contribution empirically examines the influence of knowledge sharing, emotional intelligence, self-efficacy, and intrinsic motivation on creativity in a sample of Slovenian business students.
The paper is structured as follows. First, we briefly present the identified personal factors and develop hypotheses. Second, we present the methodology used, the analysis, and the results. Finally, we discuss the results and present the implications and future challenges.

2. THEORY AND HYPOTHESES

2.1. Knowledge sharing and creativity

Knowledge is closely intertwined with innovation and creativity. According to Harkema (2003), innovation has a strong knowledge-based nature wherein knowledge is assimilated and shared in order to produce new knowledge. Rui and Yang (2009) concluded that both knowledge dissemination and innovation have an effect on creativity because an increase in either factor improves creativity. Likewise, knowledge sharing plays an important role in creativity and innovation because the ability to willingly share information improves innovation capability (Lin, 2007) and learning communities increase creativity through knowledge sharing among students (Chen, Yu-chen Yeh & Yi-Ling Yeh, 2012).

Knowledge sharing is a part of knowledge management, the main purpose of which is to increase innovativeness and responsiveness (Hackbarth, 1998). Knowledge sharing is defined as a process occurring between at least two people, who spread their newly acquired knowledge or information among each other (Han, Ho, & Ryu, 2003). It consists of four basic processes: creating, storing/retrieving, transferring, and applying knowledge (Alavi & Leidner, 2001), thus enabling all participants to possess the same information and knowledge (Nancy, 2000) as well as creating an opportunity to develop value-added benefits for themselves (Liebowitz, 2001).

The findings of Chae, Lee, and Seo (2015) suggest that knowledge sharing is more likely to help individuals to obtain knowledge about different means of solving a given problem through generating ideas that are expected to lead to many new and improved ideas. However, knowledge sharing is not as maximally efficient without personal commitment and appropriate feedback that encourages individuals to distribute their knowledge among others (Durcikovab, Hunga, Lai, & Lin, 2011). By increasing confidence in employees’ skills and in their capability to implement specific assignments, knowledge sharing is important for enhancing the employees’ creativity (Dhar Lochan & Mittal, 2015). Nevertheless, having knowledge is not enough—individuals have to deliver that knowledge on time, refer people (especially students) to research, and promote the habit of conducting research, because these three factors also influence creativity (Danaci Mutlu, 2015).

Knowledge sharing becomes extremely important when new ideas are being generated. This is a starting point for creativity (Gurteen, 1998). Ideas are basically something unrealized, unproven, or untested (Gurteen, 1998) and are often seen as the basis for innovation (Harkema, 2003), which is related to change that can be drastic or incremental (Du Plessis, 2007). Change can occur around one or within one. Through study years, students may gain knowledge that will change their perspective of the world, in essence creating a change within them. Knowledge sharing will
transpire first between students and professors, and then between students. Without the transfer of knowledge, students will not be able to acquire the necessary knowledge that they can then use to generate ideas that will potentially help them solve a problem, create a new business plan, or improve an organisation. Groza, Howlett, and Locander (2016) found that a person’s level of knowledge is a crucial factor in transforming creative thinking into sales performance. Thus, knowledge attained through life has a great impact on creativity, which indirectly affects the way an individual performs throughout life. Paulus and Yang (2000) discovered that interactive group brainstorming enhances performance better than individual brainstorming. This highlights the fact that knowledge, which is not being transferred, has little effect on creativity and is actually an inhibitor. If we do not share our knowledge, we are preventing ourselves and others from growing, improving our performance, and developing good ideas to help us. In fact, from this point of view, it can be argued that without knowledge sharing one cannot manifest ideas that will jumpstart creativity, which is needed to continually adapt and create in an ever-changing and increasingly complicated world (Heinonen, Hytti, & Stenholm, 2011).

_H1: Knowledge sharing is positively related to creativity._

2.2. Self-efficacy and creativity

Bandura (1997) defined self-efficacy as one’s belief in one’s ability to succeed in a specific situation or accomplish a task. It is a completely situation-specific concept of expectancy of being successful in solving a problem. We are usually more self-confident in a specific situation when we know all the information we need. Bandura also showed that environment influences self-efficacy. Therefore, we can influence self-efficacy by changing environmental factors.

Self-efficacy can be understood as a factor that influences creativity or as a rating of one’s self-confident in doing creative tasks. We usually do not find the best creative ideas being forced. In fact, we are more creative when we want to do something on our own and we believe that we are able to do this. Individuals who have high self-efficacy are confident that they are able to complete a given task. Thus, if individuals have high self-efficacy when faced with a creative task, this self-efficacy should stimulate creativity. In other words, in order to be creative, individuals should believe in their success.

According to Bandura (1997), strong self-efficacy is a necessary condition for creative productivity and the discovery of new knowledge. Tierney, Pamela, Farmer, and Steven (2011) also found that increased level of employees’ self-efficacy corresponds with higher levels of creative performance. Self-efficacy is a personal factor of creativity, formed through experiences. In addition, Egan (2005) points out the role of organizations, which should enhance employees’ self-efficacy and thereby stimulate creativity. Byrge and Tang (2015) found that training can increase self-efficacy and thereby enhance creativity. Furthermore, Huang, Krasikova, and Dong (2016) also found that a leader’s creative self-efficacy encourages followers to engage in creative tasks and improves their creativity.

The link between self-efficacy and creativity has also been tested in a school environment. For example, Miseong (2014) tested 160 prospective teachers to support
the correlation between creative self-efficacy and creative performance. He first tested their belief in their creativity to determine their self-efficacy regarding creativity. He then tested their objective creativity. The results showed a statistically significant difference in creative behavior between teachers with the highest level of creative self-efficacy and teachers with the lowest level of self-efficacy (Miseong, 2014). According to these results, creative performance is a function of creative self-efficacy (Miseong, 2014).

H2: Self-efficacy is positively related to creativity.

2.3. Emotional intelligence and creativity

Emotions, which may be positive or negative, play an extremely important role in human life. Goleman (2010) argues that the intellectual part of the brain is stifled when emotions take place. When the intensity of emotions is high our reasonable mind is less effective (Goleman, 2010, str. 21).

Goleman (2010) defined emotional intelligence as the ability for self-restraint, persistence, passion, and self-encouragement. Mayer and Salovey (1997) proposed the following four dimensions of emotional intelligence: emotion identification, emotion utilization, emotion understanding, and emotion regulation. There are two opposing conceptual views of emotional intelligence. Some researchers treat emotional intelligence as a trait, while others treat it as ability (Avsec & Pečjak, 2003). Economy demands speed and effectiveness, but usually forgets the emotional side of individuals (Laibacher Rogelj, 2013). Mayer and Salovey (1997) proposed that abilities such as emotional intelligence to control our own emotions as well as emotions of others.

Studies show a positive correlation between emotional intelligence and academic achievement among students (Parker, Summerfield, Hogan, & Majeski, 2004). In addition, researchers also found a positive correlation between emotional intelligence and academic achievement motivation. Based on these results we can assume that academic achievement depends not only on learning techniques but also on students’ emotional stability and ability to control, recognize, and use emotions. However, emotional intelligence is not only important in terms of successful academic performance but also for individuals’ success in life (Roy, Sinha, & Suman, 2013).

In addition, Noorafshan and Jowkar (2013) studied the relationship between emotional intelligence and creativity. Everyone has a potential to be creative; however, creativity requires dealing with different challenges. Noorafshan and Jowkar (2013) found that optimism and emotional perception positively predicted the creativity of students. Sanchez-Ruiz et al. (2011) found that emotional intelligence, which they defined as a trait, predicted creative personality and divergent thinking, which are two important components of creativity. Zhou and George (2003) also found that a leader’s emotional intelligence stimulates employees’ creativity. Individuals differ in their ability to appraise, accurately perceive, and express emotions experienced by themselves and by others. Individuals with high emotional intelligence are good at understanding the circumstances of emotional experience and how these circumstances change with time, and are able to take advantage of those emotional
skills. Thus, emotional intelligence can help one to understand how creativity can be awakened and may play an important role when individuals engage in the five steps of creativity, because emotions are present in all steps, from identification of the problem to implementation of the idea (Zhou & George, 2003).

**H3: Emotional intelligence is positively related to creativity.**

### 2.4. Intrinsic motivation and creativity

Intrinsic motivation stimulates individuals to act in favour of their wishes, goals, needs, and inner control. It also influences an individual’s perception of the importance of education. This section defines the association between students’ intrinsic motivation and students’ creativity and evaluates the role of educational system in the proposed association.

According to Weidinger, Spinath, and Steinmayr (2016), intrinsic motivation is one of the key preconditions for an individual’s desire for lifelong learning. It is also one of the key factors that stimulate the quality of the learning process. Gottfried (2016) argued that students who show higher intrinsic academic motivation attain higher academic and educational competence and leadership. Some motivation theories presume that intrinsic motivation reflects previous achievement-related experiences such as positive/negative feedback, and that this occurrence is guided by changes in a person’s self-concept of his or her abilities (Eccles et. al., 1983).

It is also important to acknowledge that individuals are intrinsically motivated to implement a particular task if they perceive it as motivated primarily by their own benefit and integration in the task. Classroom goal structures can shape different types of self-determination motivation of an individual and therefore indirectly affect one’s creativity (Peng et. al., 2013). According to Deci and Ryan (1985), intrinsic motivation is the highest level of self-determination. It specifies circumstances in which students are working on assignments out of their own free will. They must also remain highly autonomous in participating in learning activities for the feelings of pleasure, fun, and satisfaction. Autonomy-supportive activities put individuals into positions of empowerment, which include going through processes of choice and experiencing autonomy, and that decrease pressure from teachers on students to the absolute minimum (Ryan and Deci, 2000a, Ryan and Deci, 2000b, Shih, 2008 and Vansteenkist et al., 2004).

Additionally, studies suggest the production of a more adaptive pattern of learning. Goudas and Biddle (1994) and Papaioannou (1994) argued that students’ intrinsic motivation declines if they sense that professors accentuate normative and social comparisons in combination with reinforcement, and that intrinsic motivation is stimulated if students have the right to make decisions and take control in choosing. In addition, Brunel (1999) stated that a classroom environment, which highlights mastery of a goal, additionally affects one’s self-determination and thereby drives individuals to become intrinsically motivated. Stated differently, when a student senses that a teacher emphasizes learning with understanding, acknowledges mistakes as a part of learning, and focuses on task-mastery, the student feels secure in the learning situation, and this stimulates individuals to participate in the educational activities with ease and higher intrinsic motivation (Peng et. al., 2013).
Intrinsic motivation may be stimulated by different circumstances that prompt enjoyment and passion for learning activities. That state of mind enables students to broaden their freedom of expression and to overcome the boundaries created by a monotonous way of delivering lectures, which provides only a narrow selection of various ways of thinking and solving problems. As challenges make matters more interesting and therefore stimulate elements of intrinsic motivation, such as enjoyment and desire for enforcing one’s opinion, students must be challenged to develop a sense of and abilities for finding creative alternative ways to resolve problems. They should also be stimulated to doubt things and to support their arguments, and also to learn from their own mistakes, because it is known that people will forget what they have been taught much sooner than facts that they have acknowledged by themselves. Taken together, several existing studies showed that intrinsic motivation stimulates creativity (Amabile, 1985 and Moneta, Siu, 2002 and Choi, 2004) and is linked with successful performance of creative tasks (Amabile et al., 1990, Amabile, 1996, Mainemelis, 2001 and Mainemelis and Ronson, 2006).

H4: Intrinsic motivation is positively related to creativity.

3. METHODS

3.1. Procedures and participants

Empirical data were collected in a student environment, examining business students from Slovenia. Seventy-five students filled out a web-based questionnaire. The age of the students ranged from 20 to 29 years, with a median age of 21; 37% of the students were male, and 58% had work experience.

3.2. Measures

All the variables were self-reported and measured on a 7-point Likert scale with the anchors “strongly agree” and “strongly disagree,” unless indicated otherwise. The following is a description of the measurement scales used for focal and control variables.

Creativity. We measured creativity by using a 13-item scale adapted from the Zhou and George (2001) work-related creativity measurement scale. The items were general enough to fit a student population (α = 0.94).

Knowledge sharing. A five-item scale was used to assess knowledge sharing behaviour (Bock et al., 2005). The items measured how frequently respondents shared study-related knowledge with their colleagues in the past year. Responses were documented on a 7-point Likert scale with 1 being “Very Infrequently,” 4 being “Moderate Frequency (Few times per month),” and 7 being “Very Frequently (Many times daily)” (α = 0.96).

Self-efficacy. Self-efficacy was measured using a seven-item occupational self-efficacy scale by Schyns and von Collani (2002), chosen as a more general measure of belief in one’s own capabilities to tackle challenging tasks (α = 0.93).

Emotional intelligence. Emotional intelligence was measured by using a 17-item scale developed by Davies et al. (2010) (α = 0.95).
**Intrinsic motivation.** Harter’s (1981) 17-item scale was used to measure intrinsic motivation in the classroom (α = 0.97).

**Control variables.** We included students’ gender, age, and work experience as control variables.

### 3.3. Results

Table 1 provides the descriptive statistics (means, standard deviations, and correlations) for the main variables analysed in the study.

A series of regression analyses was applied to test the hypotheses. To test Hypothesis 1, which predicted a positive relationship between knowledge sharing and creativity, knowledge sharing was added to the regression model as an independent variable predicting creativity. Knowledge sharing was positively related to creativity (β = 0.24, se = 0.06, p = 0.00), supporting Hypothesis 1. To test Hypothesis 2, self-efficacy was added to the regression model as an independent variable predicting creativity. The results revealed that self-efficacy was positively related to creativity (β = 0.63, se = 0.07, p = 0.00), supporting Hypothesis 2.

To test Hypotheses 3 and 4, we added emotional intelligence and intrinsic motivation to separate regression models as independent variables predicting creativity. The results revealed that emotional intelligence was positively related to creativity (β = 0.63, se = 0.09, p = 0.00), supporting Hypothesis 3, as was intrinsic motivation (β = 0.43, se = 0.08, p = 0.00), supporting Hypothesis 4.

### 4. DISCUSSION

This paper examines the relationships between knowledge sharing, self-efficacy, emotional intelligence, intrinsic motivation, and creativity. We hypothesized a positive relationship between knowledge sharing, self-efficacy, emotional intelligence, intrinsic motivation and creativity and found support for all four hypotheses. Specifically, we found that when students share their knowledge, they should be more creative. In addition, self-efficacy and emotional intelligence may also increase creative behaviour in the classroom. Finally, when students are intrinsically motivated for studying, this may increase their creativity during the studies.

#### 4.1. Implications

This study contributes to the creativity literature by indicating that creativity in the classroom can be a consequence of several personal factors that stimulate this desirable outcome. First, the study contributes to the creativity literature by indicating that knowledge sharing stimulates creativity in the classroom. Knowledge sharing is important because it will help students complete a certain task more efficiently. Their minds will absorb more information, which is the basis for creativity; therefore,
they will be able to develop new ideas that could potentially lead to new businesses. In
the school environment, it is important that instructors promote knowledge sharing, because it will improve the relationship between colleagues as well as positively affect creativity in the classroom. In the workplace, individuals will be more willing to exchange information if employers see them as a single organism working together towards a certain goal, where all employees have full access to information. Thus, knowledge sharing should help defuse competition between co-workers and help the leaders to understand their employees better, which will lead to a better working environment.

Second, the study also contributes to the creativity literature by providing empirical evidence that self-efficacy promotes creative behavior in the classroom. Self-efficacy is defined as belief in one’s ability to successfully accomplish a specific task. However, we should also acknowledge the influence of knowledge on self-efficacy. Students are usually more self-confident in a specific situation when they know all the information they need. So knowledge is a factor of self-efficacy. Thus, knowledge influences creativity directly and indirectly through self-efficacy. Instructors should therefore encourage students to gain the necessary knowledge in order to increase the self-efficacy of students. Higher self-efficacy will promote creative behavior of students.

Third, we also contribute to the creativity literature by showing the positive relationship between emotional intelligence and creativity. Emotional stability is very important for entrepreneurs to understand so that they can give employees options for creative thinking with good relationships, less stressful work, more trust, and more personal autonomy. Emotional intelligence is important for students too. The results show that control of emotions is very important for creativity. Thus, during exams students should stay focused and control their emotions in stressful situations. There is no rule for how to stop emotions overcoming the reasonable part of mind, but it is good to be able to recognize and evaluate emotions and deal with them in different situations. Specifically, if students are able to control their emotions and be emotionally intelligent, they will be more creative.

Finally, we also contribute to the creativity literature by providing evidence that intrinsic motivation promotes creativity. This finding is consistent with existing research results (Amabile, 1985; Moneta, Siu, 2002; Choi, 2004). Challenges make courses more interesting and therefore stimulate intrinsic motivation, and consequently promote creativity. Instructors thus should challenge students and thereby stimulate their intrinsic motivation, which may lead to creative behavior.

4.2. Limitations and future research

Our study has several limitations. First, the sample is very small, which limits the ability to perform advanced analyses. Second, and related, the existing design tested only simple direct relationships between the variables. The existing research design could be improved by including a larger sample of students and proposing and testing moderated or/and mediated relations between the constructs.
Third, the data were cross-sectional, which limits the ability to demonstrate causality. Future research could benefit from longitudinal designs, which could enable observations of variations in creativity and other variables of interest over time. Fourth, the data were all self-reported, which raises concerns about common method bias.

**EXTENDED SUMMARY / IZVLEČEK**

Ustvarjalnost predstavlja zelo pomemben element doseganja trajne konkurenčne prednosti in uspeha posamezne organizacije. Od študentov ekonomskih in poslovnih ved, ki bodo kmalu vstopili na trg delovne sile, se zato pričakuje, da bodo ustvarjalni.

V prispevku zato poskušamo odgovoriti na vprašanje, kako spodbuditi ustvarjalnost študentov ekonomskih in poslovnih ved. Pri pregledu literature smo identificirali štiri dejavnike, ki pozitivno vplivajo na ustvarjalnost študentov.


Rezultati so potrdili pozitivna razmerja med širjenjem znanja, samoučinkovitostjo, čustveno inteligentnostjo, notranjo motivacijo in ustvarjalnostjo študentov.

Na podlagi rezultatov predlagamo naslednje: a) učitelji in profesorji bi morali spodbujati deljenje znanja, saj lahko tako izboljšajo odnose med kolegi in hkrati pozitivno vplivajo na ustvarjalnost študentov; b) učitelji in profesorji bi morali s svojim načinom dela spodbujati študente, da osvojijo potrebno znanje in tako povečajo svojo samoučinkovitost. Višja samoučinkovitost bo namreč spodbudila ustvarjalnost; c) rezultati kažejo, da je nadzor čustev zelo pomemben za ustvarjalnost. Med izpitnim obdobjem in ostalimi stresnimi situacijami bi morali študenti ostati osredotočeni in uspešno nadzirati svoja čustva; d) profesorji bi morali spodbujati študente k novim izzivom in tako stimulirati njihovo notranjo motivacijo, ki spodbuja ustvarjalnost.

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